

Overview of Environment Sanitation Conditions of Elementary Schools in Surakarta City During the Covid-19 Transition Period

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Abstract

The mandatory requirements that schools must fulfill are strict implementation of health protocols, for example having adequate hand washing facilities equipped with running water and soap. However, data shows that there are still many elementary schools in Indonesia that do not have sanitation facilities that meet standards. This research aims to provide an overview of the environmental sanitation conditions of elementary schools in Surakarta City during the Covid 19 transition period. This research uses a descriptive observational method. The research was conducted in 10 elementary schools in the Surakarta City area. The research was conducted from February to March 2023. The sampling technique was random sampling. The sample in this study was 10 elementary schools. The data collection technique is by observation by filling in an observation sheet. The data analysis used is descriptive univariate analysis. The research results show that 80% of elementary schools provide hand washing facilities and soap and are equipped with a good drainage system. The cleanliness and condition of water closets in most schools meets the requirements. However, there are several elementary schools where the ratio of the number of toilets and students does not meet the requirements. There are 80% of schools where clean water sources are located and 70% of schools where the distance between water reservoirs and water closets to the canteen meets the requirements. 70% of schools have a distance between the bathroom or cafeteria and the school canteen < 10 meters. It was concluded that 10 elementary schools in the city of Surakarta were categorized as healthy schools or had good sanitation hygiene. However, there are several sanitation facilities whose existence needs to be optimized so that the level of health can increase. It is recommended for schools to ensure that school areas, including classrooms, toilets and school grounds, are cleaned regularly to prevent the accumulation of rubbish and dirt and it is recommended to provide regular education to students about the cleanliness of the school environment and provide adequate hand washing facilities.

Keywords: COVID-19, environmental health inspection, elementary school, hygiene sanitation, transition period

INTRODUCTION

Environmental health is a condition where the environment influences a person's health status, both physical, chemical, and biological factors. In addition, behavior also participates in it so that awareness, will, and ability to live are increasing. School is not only a place of learning but also a place to teach and instill the value of health care. Therefore, every school-age child is expected to receive sufficient information, education, and health services so that children grow and develop in a healthy environment and prevention can be done early (Presiden Republik Indonesia, 2009).

The status of Covid 19 in Indonesia has begun to move towards a transition period, namely from pandemic status to endemic to new habits, and doesn't mean free of the Covid-19 virus. Based on the joint decree 4, the minister explained that face-to-face learning could be

carried out if the area has been zoned green and every student and educator, such as teachers and employees, has received complete Covid-19 vaccination. Furthermore, schools provide supporting facilities such as sufficient clean water facilities, masks, and hand washing with soap facilities with running water or can be replaced with the availability of disinfectant fluids in every space (Tanuwijaya et al., 2021).

The Sustainable Development Goals (SDGs) clearly make clean water facilities practices a management plan in response to epidemics and pandemics is recognized by several world leaders, who prioritize it while investing in implementation and management. Given the number of outbreaks that have occurred in the last three decades, long-term planning is essential for sustainable clean water services, including communication to educate, as part of the millennium development goals and sustainable development goals (Matta et al., 2022).

In addition, basic sanitation requirements include access to clean water that is easily accessible with sufficient quantities, quality and quantity of water, environment cleanliness to rooms used in school activities, including canteens, medical room, offices, bathrooms, places of worship, organizational space to parking lots (Hakim et al., 2021).

Through this new policy, the community is expected to be able to implement WASH practices, sanitation facilities, and hygiene practices, as well as correct and regular waste management, especially the education scope, which contributes a lot to the transmission or transmission of COVID-19 (WHO & UNICEF, 2020).

This policy is supported by regulation of the minister of education and culture number 24 of 2007, which regulates the facilities and infrastructure standards for general education schools/madrasahs. School sanitation is a development priority for the 2030 SDG's, and needs to be continuously monitored and detected so that the infrastructure can be used by students properly (Kementerian Pendidikan Nasional Republik Indonesia, 2007; Matta et al., 2022).

UNICEF data 2017 showed that 56.93% of the community had difficulty accessing clean water, 50.20% of schools didn’t have access to wash your hands with soap, and 14.74% of bathrooms weren’t equipped with latrines. In 2020, 16% of primary schools in Indonesia had proper sanitation, 65% of schools still combined male and female toilets and around 43.5 million Indonesian children didn’t experience standardized sanitation, such as easy access to clean water and environmental hygiene (Hakim et al., 2021).

Restricted access to sanitation makes it difficult for school residents to prevent Covid-19. Consequently, the quality of health and comfort during face to face learning becomes disrupted. Funds or budgets to meet the needs of clean water and sanitation facilities are contained in the Law of The Republic of Indonesia number 23/2014 article 12 (1), which

explains that local governments must allocate funds to fulfill the need for sanitation in primary schools (Presiden Republik Indonesia, 2014).

Research Tuang (2021) stated that there was a relationship between the availability of clean water (ρ=0.001), hand washing habits (ρ=0.004), availability of toilets (ρ=0.000), and waste management (ρ=0.003) with the incidence of diarrhea in children. Research Widyawati et al., (2021) get results that there is a relationship between school sanitation and student health (ρ=0,000).

Research Ulya et al., (2023) stated that the condition of environmental sanitation facilities in elementary schools in Kragan District, Rembang Regency which did not meet the requirements consisted of the condition of clean water facilities (17.1%), the condition of toilet facilities (88.6%), the condition of waste water drainage (85.7%). %), condition of waste disposal facilities (88.6%), condition of hand washing facilities (100%).

The school's authorities can include sanitation needs in the school activity and budget plan, which will eventually be funded by school operational assistance or other alternative means as agreed upon. However, there were other obstacles that occurred, namely the discrepancy between planning and implementation, sometimes the planning of school operational assistance funds made in the school activity plan and budget was not carried out properly, which resulted in financial reports that did not state the truth (Nurrochman et al., 2023).

Based on preliminary studies that have been carried out, the results regarding the sanitation conditions of elementary schools show that in all elementary schools, the general condition of sanitation facilities such as the cleanliness of water closets still does not meet the requirements, hand washing facilities do not meet the requirements and water tanks do not meet the requirements. Where the conditions are dirty and lack ventilation so that the toilet is stuffy and smelly, and there are mosquito larvae in the water reservoir. The school's wastewater drainage channel flows directly into the ground, causing puddles and unpleasant odors. All schools' rubbish dumps are uncovered, scattered and not well managed. Hand washing facilities are limited, not equipped with hand washing soap, and there are no hand dryers. This research aims to provide an overview of the sanitary conditions of elementary schools in Surakarta City during the Covid-19 Transition.

METHODS

This type of research uses a descriptive observational design with a quantitative descriptive approach, namely making direct observations. The results are displayed in table form. The aim of this observation is to describe the environmental sanitation conditions of elementary schools in the Surakarta City area during the Covid-19 transition period.

The research was conducted in ten elementary schools in the Surakarta City area. The research was conducted from February to March 2023.

The sampling technique in this research uses a random sampling system. The sample in this study was 10 elementary schools in the Surakarta City area.

The data source uses primary data obtained from direct observations accompanied by the school and filling in observation sheets. The data collection technique is by observation by filling in the observation sheet for assessing the environmental health of elementary schools as contained in Decree Number 1429/MENKES/SK/XII/2006.

The assessment was carried out on several components with various variables in them, such as the sanitation facilities component, access to clean water and finally the waste and wastewater component. Each variable will be assessed and categorized into 2, namely meeting the requirements and not meeting the requirements. Next, all variables will have their values added up, if the total score reaches 60–100 then it is declared to meet the requirements, while a total score of less than 60 is categorized as not meeting the requirements. Furthermore, the sanitation conditions of elementary schools can be categorized into 3, namely healthy schools if they get 16-13 variables that meet the requirements, unhealthy ones get 12 -10 variables that meet the requirements and unhealthy ones have low variables or <10.

The data analysis used is univariate analysis. The data that has been collected is analyzed using statistical programs for social science software and presented in the form of tables and narratives. The research data is in the form of categorical data so that it will produce a frequency and percentage distribution of each variable.

RESULTS

Table 1. General Conditions Of Sanitation Facilities (n = 10)

Variables	Frequency	%
Bathroom Hygiene		
Eligible	8	80
Not eligible	2	20
Handwashing Facilities		
Eligible	8	80
Not eligible	2	20
Condition of The Water Reservoir in the Bathroom		
Eligible	8	80
Not eligible	2	20
Total Number of Toilets		
Eligible	5	50
Not eligible	5	50

An inspection of elementary schools was conducted at 10 locations in the city of Surakarta. In Table 1, some schools didn’t eligible for the variable of the number of urinals or bathrooms with sufficient student capacity, and it’s located separately between men and women. Sanitation facilities that have eligible in almost all schools were the cleanliness of toilets at 80%, availability of handwashing facilities at 80%, and the condition of water tubs in bathrooms at 80%.

Table 2. Observation Results on Clean Water Component (n = 10)

Variables	Frequency	%
Location of Clean Water Source to Septic Tank or including Drinking Water Companies		
Eligible	8	80
Not eligible	2	20
Water Health Requirements		
Eligible	10	100
Not eligible	0	0
Water Quality		
Eligible	10	100
Not eligible	0	0
Water Storage		
Eligible	7	70
Not eligible	3	30
Distance Between Hint, Toilet with the School Canteen		
Eligible	7	30
Not eligible	3	70

Water quality is highly emphasized in this indicator. All or 100% of schools meet eligible on the water requirement variable. The distance between toilets, hint, and the school canteen is at least 10 meters, but seven elementary schools still need to be eligible. The location of the water source to the septic tank and the condition of water storage in 80% of schools are qualified.

Table 3. Observation Results on Waste and Wastewater Components

Variables	Frequency	%
Trash Bins Inside or Outside the building		
Eligible	6	60
Not eligible	4	40
Temporary shelter		
Eligible	5	50
Not eligible	5	50
Distance of TPS from school stalls		
Eligible	10	100
Not eligible	0	0
Location of garbage shelters from the clean water source		
Eligible	10	100
Not eligible	0	0
Sewerage systems		
Eligible	10	100
Not eligible	0	0
Distance of wastewater storage from the clean water source		
Eligible	10	100
Not eligible	0	0
Distance of wastewater storage from the school canteen		
Eligible	10	100
Not eligible	0	0
Waste water disposal		
Eligible	10	100
Not eligible	0	0

All schools have provided facilities by government regulations, such as wastewater disposal conditions, the distance of wastewater storage from the school canteen and clean water source, and the location of temporary garbage shelters from the school canteen and clean water source. However, some schools didn't meet eligible for variable availability of trash bins inside/outside the building. As many as 40% and 50% of schools do not qualify for garbage shelters conditions. It is essential to consider the issue of trash bins, with the standard requirement that they should be separated and have a minimum of 3 compartments to accommodate and dispose of waste according to its type.

DISCUSSION

The observation results from Table 1 indicate that 80% of schools meet the sanitation bathroom/toilet facilities standard. Therefore, the condition of this school is categorized as good, although there are still shortcomings, such as no soap in the bathroom. In addition, almost all schools (80%) have handwashing stations facilities. The Indonesian Ministry of Health

Decree No. 1429 of 2006 states that every school must provide 1 handwashing stations facility in front of each classroom or room (Kemenkes RI, 2006).

Such as social distancing, isolation, quarantine, and hand hygiene remain the mainstay of infection prevention and control against respiratory infections including COVID-19. Maintaining hand hygiene through effective handwashing for 40 seconds has become crucial, as this is how we can prevent and halt the spread of the Covid-19 virus. You can replace soap and water with hand sanitizer if soap and water are unavailable (Hanso, 2016).

Research conducted by Ardillah et al., (2021) The results indicates that inadequate availability of handwashing stations has been experienced by a portion, or 55.4%, of schools, and 78% of schools have access to clean water. A majority, or 62%, of schools, meet the criteria for the variable of the ratio of toilets to students. This is due to the budget that needs to be managed optimally and according to its function.

Maintaining and caring for infrastructure facilities is the obligation of all school community members, including students, teachers, staff, and principals. So it is necessary to have school sanitation inspection activities to directly inspect and observe the standardization of school environmental media based on quality standards (Ganefati et al., 2022).

Creating an evaluation of elementary school sanitation aligns with the clean and healthy elementary school guidelines published by the Ministry of Education in 2015. Sanitation management is not solely about infrastructure; behavior and habits are also considered. National data shows an average of 35.7% adherence to clean and healthy behavior and only 24.5% of school children practicing water for handwashing behavior. Therefore, there is a need for increased awareness through education and behavior change campaigns regarding sanitation (Listiadesti et al., 2020;Susanti et al., 2020).

Similar research was conducted Enkhbat et al., (2022) in Mongolia, elementary school students did not wash their hands or wash hands with soap practices such as 13% of students washed their hands without soap, the school did not provide hand sanitizer 14.5%, and 84.9% of students did not wash their hands properly. Classroom education efforts were made, with 75.2% of students attending and half of them unable to practice handwashing at the end of the session. This indicates that health education and promotion is not effective among primary school students. Furthermore, 56.1% of students complained about the lack of wash hands with soapfacilities in their school.

The condition and cleanliness of the bathrooms of elementary schools in Surakarta City have reached 80%. The sanitation requirements for schools, according to the Indonesian Ministry of Health Decree No. 1429/MENKES/SK/XII/2006, include maintaining bathroom

cleanliness, providing soap and water for handwashing, eliminating odors, and ensuring that the toilet bowls are clean. Ideally, bathrooms should be separated between men and women students to ensure their comfort. However, in this study, only most schools implemented separate toilets. However, in this study, only most schools have implemented separate toilets. Other provisions include having at least one urinal for every 40 male students, one toilet for every 25 female students, and two bathrooms for teachers, staff, and the school principal (Mustikohendro et al., 2020).

The requirements for toilet construction are flush toilets, separate toilets for girls and boys, separate toilets for staff and guests, variations in toilet size that take into account differences in children's height, toilets with handrails for people with disabilities and the elderly, toilets with windows that allow daylight and ventilation, and handwashing facilities connected to the toilet room. The number and type of toilets are not specified but should consider the number of users (Ministry of Education, Culture, Sports, 2020).

Only 31.40% of primary schools in Indonesia have proper toilets, and the minuses are still combined between male and female toilets (Mustikohendro et al., 2020). Observation Ulya et al., (2023) conducted in 35 elementary schools in Rembang showed that 5.7% of toilets were combined with classrooms and canteens, 68.6% of toilets were not separated between men and women, bathrooms smelled, dirty water reservoirs contained mosquito larvae as much as 88.6%.

Another research by Yustika et al., (2021) at MI Al - Amin School, Semarang City, shows that the results of toilet conditions need to be more eligible. This can be seen from the indicators of cleanliness, lack of wall education or information, and the absence of separation between men and women toilets, and teacher or employee toilets are still merged into one with student toilets. Generally, this problem occurs due to the need for more cleaning staff, limiting the number of bathrooms.

The observation indicators for clean water quality show that two elementary schools need to meet the requirements for the variable of the location of the clean water source with septic tanks. According to Regulation of the Minister of Public Works and Housing No. 20/PRT/M/2016, it is explained that the distance between sources of pollution (septic tanks, ponds, waste pits, dirty pits, etc.) and clean water sources should be at least 15 meters. The location of wells or water sources should be higher than sources of contamination. This is intended to prevent water contamination by *E. Coli*, which can cause diseases such as diarrhea, dysentery, etc (Kementerian PUPR, 2016).

Meanwhile, as stated in the Decree of the Minister of Health of the Republic of Indonesia No. 1429 of 2006 concerning guidelines for the implementation of school environmental health states that the distance of wells or clean water facilities with septic tanks and the length of the canteen with hint/ WC is at least 10 m, the quality of water must be sufficient to meet all school needs. It must meet health requirements by the provisions (Kemenkes RI, 2006).

Furthermore, for the distance variable of bathrooms, urinals, wc with school canteens, the results show that 70% of primary schools still need to meet the requirements. According to the effects of interviews with school guards, one of the obstacles experienced by schools related to the minimum distance is due to the lack of land, so it is not possible if it is made according to the provisions. This agrees with (Ardillah et al., 2021).

In a study of public primary schools in the Palembang area, 73% of schools met the sanitation requirements, including the distance between garbage disposal and liquid waste disposal with classrooms, canteens, bathrooms, and clean water storage > 10 m and most schools have drained liquid waste into ditches or rivers. If the distance between the toilet and the canteen meets the requirements, it will positively impact health and the food's hygiene. The condition of the reservoir is clean and closed to keep it free of larvae, drained at least once a week, and the reservoir is emptied during school holidays.

The inspection data indicates that all primary schools 100% have water quality and physical eligibility already up to standard. The water sanitation facility has tools like a water pump to channel water from the ground to all faucets, ensuring that students can access adequate clean water (Misrah et al., 2019).

Elementary schools in Japan place great emphasis on water quality, in "The Manual for School Environmental Health Management" published by the Japan Society of School Health (JSSH) 22 it is explained that water quality monitoring is carried out daily including 0 mg/L chlorine content, physical examination or color, odor and taste, and once a year laboratory examination (Sugita, 2022). There are several sources of pure water providers, such as public water supply, dug wells, pump wells, rainwater harvesting, spring water collection, and piping. Most areas in Surakarta City are already urbanized, where schools typically use public water supply and pump wells, including the inspected schools.

In addition, according to Novitantia, (2016), In their research, the school authorities must possess a certificate or document stating that the clean water used isn't contaminated with bacteriology *(E.coli)*. The community health center can check water quality regularly by submitting a request for permission to conduct inspections. In the water storage variable, 30%

of schools do not meet the requirements. Water reservoirs with clean conditions will be categorized as unqualified if left open, making it easier for mosquitoes to breed. Research results (Anggraini et al., 2019) showed that during long holidays some primary school caretakers would empty the bathtubs and tubs located in the toilet with disinfectant, and the rest (56.5%) did the opposite or left the reservoir filled with water. This is because the guards use the water in the tubs for daily needs. If the tubs are not cleaned diligently, they are likely to be used by mosquitoes for breeding.

In Table 3, the variables assessed include the availability of indoor/outdoor trash bins, temporary shelters, sewerage system, a distance of temporary storage sites from the canteen and clean water sources, condition of wastewater disposal, space of wastewater reservoirs from clean water sources, and canteen. Observations showed that several variables were unqualified, such as 40% of schools didn’t provide trash bins in each room, and 50% of schools had poor conditions of temporary waste disposal sites. Many trash bins outside the classrooms lack covers, and the school doesn't provide separate compartments for different types of waste. This results in scattered garbage and unpleasant odors as students dispose of trash in a single container. Consequently, the teaching and learning process is disrupted, and students' achievements decline. Most schools that don't meet the requirements are due to Temporary storage sites being made of cement/drum with an open condition.

According to Notoatmodjo (2012), a relaxed state of temporary storage sites will attract vectors such as rats, flies, and cockroaches resulting in various impacts such as unpleasant odors, aesthetic disturbances, up disease. It is advisable that waste not directly transported to the landfill be sorted d so that organic waste and non-organic. Organic waste and paper were the highest components in the waste stream at 29.0%, followed by plastic 18.0%, metal 13.0%, leather 5.0%, glass 4.0%, and residue 2.0%. The high percentage of organic, paper and plastic waste in the waste bins can be utilized into socio-economically beneficial products as this saves energy, provides employment opportunities, provides additional income and alleviates poverty (Safo-Adu et al., 2023).

All elementary schools have met the requirements for the indicators of the distance from TPS to school stalls and clean water facilities, the condition of sewerage, the length of wastewater storage from a clean water source and school stalls, and the state of wastewater disposal channels. temporary storage sites serves as temporary waste storage areas before being transported to a landfill and is managed by an integrated waste management facility. Hence, temporary storage sites should not be located near food areas and water sources as they may contaminate these areas and cause disease. Research Ulya et al., (2023) indicates that 88.6% of

schools need to meet the requirements for waste disposal facilities. This is due to the lack of waste bins indoors/outdoors (20%), waste bins without lids (85.7%), fragile and damaged waste bin conditions (5.7%), absence of temporary storage sites (2.9%), and temporary storage sites being less than 10 meters away from the building (22.9%).

Almost all schools have wastewater disposal channels with cemented, covered conditions and flow smoothly. However, there are a few schools where the disposal channels are still open, even though the flow is smooth. If this situation continues, it will inevitably lead to unpleasant odors and become a breeding ground for vector animals. According to Decision Number 1429/MENKES/SK/XII/2006, the temporary waste disposal site must be located at least 10 meters away from a water source, with a clean and covered environment, categorized waste separation, permanent structures, and easily accessible so that the waste transportation process doesn't experience obstacles. Then, wastewater disposal facility must meet the following requirements: have a minimum distance of 10 m from the water source and canteen, separate streams with rainwater channels, be made waterproof, closed, and don’t pollute the environment. Wastewater can be collected or drained into a septic tank and allowed to seep into the ground if it doesn't have sewerage (Herdianti et al., 2019; Majida et al., 2019).

Sewerage blockage can cause unpleasant odors, interfere with the learning process, and have long-term impacts, such as creating an unsanitary environment. This can disrupt the balance and harmony of the atmosphere while increasing the potential for floods, fires, garbage accumulation, and disease outbreaks (Oktiawan et al., 2012). Junior high school Muhammadiyah 3 Yogyakarta utilizes infiltration wells as a receptacle for liquid waste and as a final disposal channel and become an alternative means for schools that don’t have a river/ditch as sewerage (Novitantia, 2016).

Inspection results can serve as material for evaluating schools toward establishing a healthy school. Activities supporting the creation of a healthy school include adopting clean and healthy living behaviors, fulfilling school sanitation facility requirements, enhancing the school health program, and providing a healthy cafeteria. A healthy school is expected to produce outstanding students in health aspects (Safitri, 2020; Herdiyanti, 2019).

The introduction of healthy living behaviors to school students is the most effective way for health promotion and education considering that school children are agents of change who are very sensitive to any form of change. As shown by the results of the study, 45.3% of the respondents showed poor implementation of healthy living behaviors, and the remaining proportion showed the opposite behavior (54.7%) (Nasiatin et al., 2021).

Poor behavior was carried out on indicators of school toilet use such as defecation and urination. Other research results, on indicators of hand washing behavior are categorized as sufficient with decent facilities, indicators of not smoking, and littering are categorized as poor (Messakh et al., 2019).

The implementation of a healthy school can be observed at elementary school Muhammadiyah 1 Ketelan, Surakarta, through clean and healthy living behaviors such as handwashing with soap and running water, consuming healthy food, comfortable and clean classrooms with the formation of duty groups, proper waste disposal by type, availability of segregated waste bins, and a smoke-free school environment. It's necessary to organize school cleanliness competitions, school-based waste management, and mosquito larvae inspections as triggers for achieving a healthy school. Supporting factors for realizing a healthy school include the active participation of community members in adhering to policies, adequate facilities and infrastructure, and collaboration with competent parties. On the other hand, inhibiting factors include the decline in clean and healthy living behaviors and the presence of numerous street food vendors outside the school gates with questionable quality (Vilian et al., 2021).

CONCLUSIONS

Based on the research findings, it can be concluded that elementary schools in Surakarta are categorized as healthy schools by the Minister of Health Regulation Number 1429/MENKES/SK/XII/2006. However, certain aspects of environmental sanitation require improvement, such as toilet cleanliness 80%, handwashing facilities 80%, condition of water reservoirs in the toilets 80%, the number of toilets/bathrooms 50%, the distance between the clean water source and septic tank 80%, the distance between toilets and the cafeteria 30%, waste bins 60%, and the condition of temporary waste disposal sites or garbage dump 50%.

It is advisable for all school community members to actively participate in maintaining and caring for the school's facilities and infrastructure, paying greater attention to the quality and quantity of clean water. Attach informative notices, adopt proper waste disposal practices according to type, and organize cleanliness improvement activities or programs, such as "Clean Friday." Thus, facilities that do not eligible can become compliant, and the teaching and learning activities can regain comfort, safety, and health.

To strengthen the healthy school program, the school can provide hygiene and sanitation education both directly and indirectly through print and electronic media support from the local government is also very influential in the success of the healthy school program, especially regarding issues such as the availability of handwashing facilities, clean water

sources, toilet sanitation, waste disposal facilities and temporary waste management, and wastewater disposal management. This support will contribute to the prompt establishment of a healthy school environment and further enhancement of achievements.

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